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RECENTLY PUBLISHED RESEARCH OF THE L'VOV STATE MEDICAL INSTITUTE, USSR

"Changes on the Content of Bile Acids in the Bile in Experimental Liver Injury," Yu. A. Petrovskiy, S. L. Veskeboynik, L'vov State Med Inst

"Byull Eksper Biol i Med" Vol 23, 1947, pp 18-21

In dogs with chronic biliary fistula and poisoned with P and with CCl_4, the bile acid content of the bile and the total amount of bile secretion decreased. The change in bile acid level served as one of the most sensitive indicators of disturbed liver function; it fell to 15% of normal at advanced stages of liver damage.

"Synthesis of Caffeine, Theophylline, and Theobromine," S. Gepner, L. Kreps, L'vov State Med Inst

"Zhurnal Obshchey Khimii" Vol 16, 1946, pp 179-86

$ClCH_2CO_2H$ and ice, treated with 40% NaOH, yielded a weak alkaline solution which, when treated with NaCN in water and, after subsidence of the heat evolution, evaporated in vacuo, filtered, and evaporated to a thick syrup, froze to a grainy mass. On drying the resulting Na cyanoacetate (I) was suitable for further reactions although it contained about 15% NaCl. Concentrated H_2SO_4 was cooled, treated with urea nitrate, keeping the temperature below zero and stirred; the mixture poured onto cracked ice yielded 60% nitrocarbamide (II). II washed with ice water and air-dried,

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dropwise addition of NaOH. The solution was warmed when H_2O evolution began and, after elevation of temperature, the reaction mixture was evaporated to a sirup in vacuo and treated with 1:1 NHO_3 to yield 85.3% technical monomethylcarbamide nitrate (monomethylurea nitrate) containing some NaCl. Well-dried I was mixed with dried technical monomethylcarbamide and treated with Ac_2O; the mixture, warmed, treated with H_2O and filtered, yielded 1-cyanoacetyl-3-methylcarbamide (III). Treatment of III with 20% NaOH gave a solution which solidified on self-heating, and liquified on stirring, only to solidify again to Na 4-imino-3-methylarbiturate; a solution of this in water was acidified with AcOH to yield close to 100% 3-methyl-4-iminobarbituric acid (IV). IV and 10% NaOH, heated till solution occurred, were treated with Me_2SO_4 with shaking, to yield 1,3-dimethyl-4-iminobarbituric acid; this in H_2O warmed until solution occurred, treated with $NaNO_2$, followed by slow addition of 30% AcOH, then allowed to stand, gave 1,3-dimethyl-4-iminovioluric acid (V). V, Zn dust, and 90% HCO_2H were heated on a water bath after subsidence of the initial spontaneous reaction; on cooling, the Zn formate was filtered off and the filtrate evaporated in vacuo to yield 92% pale yellow 1,3-dimethyl-5-amino-5-formamidouracil (VI); this in hot water, treated with stirring with 40% NaOH, heated, and again treated with 40% NaOH, yielded the Na salt of theophylline which, on decomposition with 50% AcOH, gave 92.5 theophylline. VI in 10% NaOH heated and the solid thus formed treated with Me_2SO_4 with shaking, followed by heating, yielded, on cooling, 87% caffeine. From IV in water heated to reflux, treated with $NaNO_2$ and 50% AcOH, almost 100% 3-methyl-4-iminovioluric acid resulted; this plus 90% HCO_2H and Zn dust were heated on a steam bath, filtered hot, washed with hot H_2O and evaporated to dryness in vacuo to yield 87.9% 1-methyl-6-amino-5-formamidouracil; this treated with 20% NaOH, heated over water bath, cooled, the mass treated with Me_2SO_4, and filtered, yielded 61.4% theobromine, crystallized from water after charcoal treatment.

"Determination of Pentoses in Nucleotides and Nucleosides by Means of the Biel Reaction," Vanda V. Neiberts, L'vov State Med Inst

"Biokhimiya" Vol 10, 1945, pp 35[illegible]-9

Method for determining pentoses in purine (but not in pyridine and pyrimidine), nucleosides, and nucleotides is described. Reagent for pentoses is prepared, which is added to liquid containing pentoses, and the mixture heated on water bath. It is then compared in a Pulfrich stop-photometer with S-61 filter. In a mixture of free pentose, nucleoside and nucleotide, uranyl acetate in the

presence of phosphate will precipitate the nucleo-
tide. The pentose content of the nucleotide
is then determined by preparing two samples, with
and without uranyl acetate. The difference between
the 2nd and 1st samples indicates the amount of pentose
in the form of nucleotide.

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